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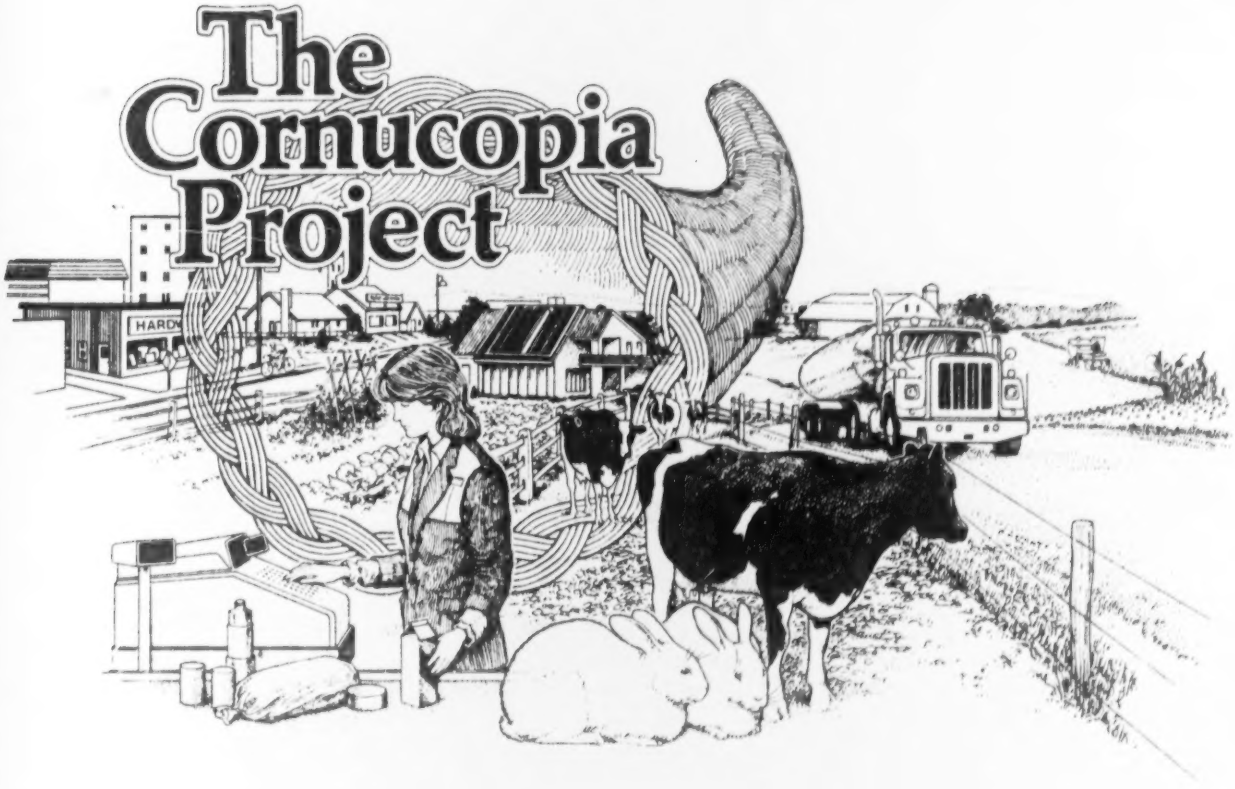

THE NEW YORK STATE FOOD SYSTEM: GROWING CLOSER TO HOME

A study of the food system of New York State by

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Introduction

When George Washington foresaw New York State as the "seat of the empire,"[1] he was undoubtedly impressed with its excellent location and rich natural endowments. To early settlers, the New York region -- a highly diversified terrain with wooded hills and fertile valleys, numerous lakes and rivers, and miles of coastline -- must have promised almost boundless productivity.

In many ways this great promise has been fulfilled. New York City is the commercial center of the world. New York State is the second most productive agricultural state in the Northeast, ranking just behind Pennsylvania in cash receipts from farming.[2] Agriculture is the state's largest industry, generating about $8 billion annually.[3] The dairy industry accounts for about 60 percent of the total cash for state farm products,[4] followed by cattle and calves, apples, greenhouse and nursery plants, and eggs.[5]

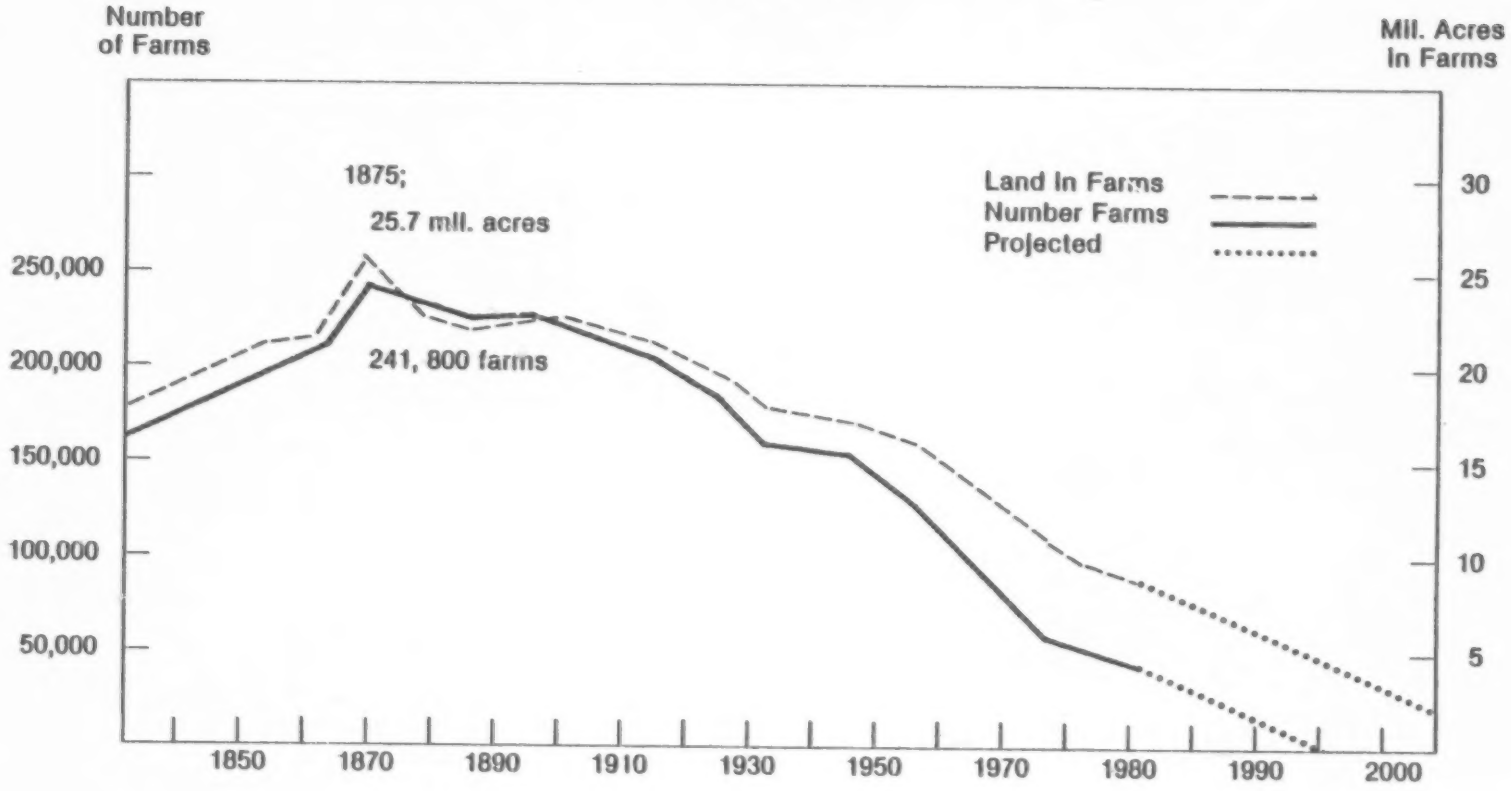
New York State leads the nation in the production of cream cheese, creamed cottage cheese, and cabbage for sauerkraut. Other major products include grapes, sweet corn, beets, Italian cheese, maple syrup, cauliflower, and snap beans.[5]

Despite this productivity, New York's food system is in serious trouble. More than 75 percent of the state's food must be imported,[6] much of it from the other end of the country. Thirty million dollars leave our state each day to pay for the food we import. Meanwhile, New York's own productive potential is being undermined by soil erosion and farmland development. These twin problems result in the loss of 96,000 acres of agricultural land each year,[7,8] an area equivalent to Queens and the Bronx together.[2] Water contamination and air pollution threaten remaining farms. Major changes are needed now to prevent any disruptions of New York's food supply.

Chart #1

NEW YORK STATE, NUMBER OF FARMS AND LAND IN FARMS

1850 to 1980



Adapted from Farm Income Data, New York and United States, C.A. Bratton and Myrtle Voorheis, New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, N.Y., 1978.

What's the trouble?

In 1880, New York State had almost 242,000 farms and more than 25 million acres under cultivation. Today we have some 49,000 farms on about 9.9 million acres,[9] 6 million of which are cropland. In the last two decades, the number of farms has decreased by 28 percent and the land in farms by 19.5 percent.[9]

The figures show that New York is losing farms faster than farmland (see chart 1), reflecting the movement toward larger, more highly mechanized farms. Farms are lost for a variety of reasons, but the primary causes are urban and suburban sprawl and financial difficulties. Farming has become less profitable during the past decade. Despite increases in cash receipts from marketing raw agricultural products, and gains in average gross farm incomes, soaring production expenses have resulted in a reduction of realized net farm incomes.[10] If these trends continue, New York will have few farms by the turn of the century.

Our state's soil is also being lost. Erosion displaces about 45 million tons of New York's topsoil annually,[10] enough to cover all of New York City with nearly 1 1/2 inches of dirt.[2,11] If this rate continues, the productive capacity of over 300,000 acres of land will be gone by the year 2000.[8,12] In addition, much of this soil ends up in lakes and rivers, where it contributes to sediment problems and where the chemical pesticides and fertilizers in it cause pollution.

Since each acre-foot of eroded soil contains about 8000 pounds of nitrogen and 2000 pounds of phosphorus,[13] New York loses about 187 million pounds of nitrogen and 46.9 million pounds of phosphorus each year. This represents some 18 percent of its total fertilizer consumption, and means an annual loss of nearly $20 million in just these two nutrients.[14] In addition, millions of gallons of water storage capacity are lost with this eroded soil.

Conversion of land to nonagricultural uses is another problem. At current rates, New York loses 81,000 acres each year,[7] an area almost the size of Brooklyn, Manhattan, and the Bronx. One-third of this land is prime farmland.[7] Since each square mile of prime land can feed about 10,000 people, over the next 20 years this loss will represent the destruction of a food production base for about 9 million people.[15] Together, erosion and conversion of farmland will result in the loss of 1.5 million acres of cropland by the year 2000, a 25 percent decline in our productive capacity.[8]

Meanwhile, New York imports more than 75 percent of its food. In 1980, our primary unloading points received more than four billion pounds of out-of-state fresh fruits and vegetables,[16] including 84 percent of our lettuce, 77 percent of our celery, 31 percent of our potatoes, 87 percent of our green peppers, 93 percent of our peaches, 74 percent of our strawberries and 21 percent of our pears. In addition, we imported 91 percent of our beef, 95 percent of our pork, 92 percent of our lamb and mutton, 97 percent of our chicken and 64 percent of our eggs. Much of this food came from such faraway places as California, Florida, the Pacific Northwest, and Central America.

California is the main source of most of New York State's imported fruits and vegetables, and unfortunately, one of the most distant. The cost of shipping one truckload of vegetables from California's Imperial Valley to New York City in February, 1981, averaged $2400.[18] The New York consumer is paying between six and fifteen cents per pound just for vegetable transportation. New Yorkers spend $18 billion annually on food, about $1000 per person, and $742 million of that is paid just to bring food into the state.

During the Northeast's growing season in 1978, some 7900 truckloads of imported vegetables (all of which could have been produced locally) came

rolling into New York City, using six million gallons (140,000 barrels) of diesel fuel for the 3000 mile trip. If the 55 million heads of iceberg lettuce we ate that season had been produced within 200 miles of New York City, the savings would have been almost 130,000 barrels of fuel and 14 cents per head.[19]

Additional energy is wasted in both transportation and farming. Most of the food distributed in New York State is hauled by trucks, which use more than three times as much energy per ton mile as railroads.[20] And small-scale farming uses substantially less fossil fuel than large-scale farming. On large California farms, the equivalent of one gallon of crude oil in fuel and electrical energy is needed to grow 96 heads of lettuce (4 crates). To simply grow the lettuce that our state imported from California between May and October of 1978, 560,000 gallons of crude oil were needed. Between one-third and one-half of this oil could have been saved with small-scale New York production.[19]

Our food supply is also affected by water supply. Most of California's agricultural land is in the southern two-thirds of the state, which receives only 25 percent of the rainfall. An intricate system of reservoirs and transportation and conveyance facilities channels trillions of gallons of water to this land. The rising energy costs of moving tremendous amounts of water, along with possible decreased availability, will seriously threaten California's future agricultural output.[21]

How did this happen?

How did New York State come to import so much of its food? One hundred years ago, most of the food supply of the Northeast was produced on local farms.[22] There was little large-scale transportation of foods as we know

it today. At one time New York was known as the "Granary of the Revolution," because of its extensive wheat production.

But after 1850, grain from the newly-opened Midwestern wheat lands began to flood Eastern markets. New York farmers began to lose their competitive advantage in local markets. They turned first to raising beef cattle and later to producing dairy products, fruits and vegetables.[23] As fertile areas in distant parts of the country developed, along with the transportation system, New Yorkers came to be more dependent upon other regions for their food. The concept of a national agriculture, as opposed to a regional one, was born.

What does food dependence mean?

While the national system is an advantage in terms of year-round availability of certain food items, it has had some major disadvantages for New York. Heavy dependence on imported food means that: 1) our supply is vulnerable to disruption; 2) our system wastes huge amounts of energy; 3) we pay more for less tasty, less nutritious food; and 4) our local economy is weakened.

Vulnerability. Approximately 9,000 truckloads of food come into New York every week to keep us supplied.[24] Any break in the tenuous chain which links New York to its food suppliers could cause widespread shortages. This break could come from a drought or labor strike in California, a transportation strike, or an energy shortage. A quarantine of California produce (which nearly occurred in July, 1981 because of a Mediterranean fruit fly infestation) would severely cut the availability of fresh foods, especially in New York City, as well as increase costs.

One large New York City supermarket estimated that if all deliveries stopped, for whatever reason, their supply of canned goods would last only four days, and perishables only two days.[25] In a city with a population of over

seven million, empty supermarket shelves could certainly induce panic, and hunger for many would soon follow. In upstate areas, reserves would last longer, but even there we would soon run out of food.

Energy waste. According to 1980 USDA figures, 5.3 percent of farm food expenditures goes to transportation costs.[26] That figure would certainly be higher for the Northeast. So New York State consumers pay a minimum of $742 million a year to have their food brought into the state. Next time you bite into some California iceberg lettuce, remember that for each calorie of food energy you consume, 36 calories of energy were expended just to bring the lettuce to you.[27]

Much of the food we import, especially vegetables and fruits, could be produced locally, resulting in a drastic reduction in fuel usage. In addition, since local producers would likely be farming on a smaller scale, energy would also be saved in the production of the food.

Cost and taste. Last year, New Yorkers spent about $2 million every day for transportation of imported food. The bad news, of course, is that transportation costs are not likely to decrease or even stabilize. In just nine months (from September, 1980, to June, 1981), trucking rates for vegetables shipped from the Salinas-Watsonville District of California to New York City rose from approximately $2800 per truckload to $3250 per truckload, a 16 percent jump.[28]

As for taste, anyone who has eaten a hard, pink California tomato in February knows that it can't compare to a red, juicy New York State tomato harvested in August. Nutritional quality may be reduced in some transported food since nutrient content is not at its maximum when fruits and vegetables are picked unripe, and the travel time results in some vitamin destruction.

For example, vine-ripened tomatoes have 25 to 30 percent more vitamin C than those picked green and ripened by ethylene gas on the way to market.[29]

Weak economy. Of the $18 billion New Yorkers spent on food in 1979, $14 billion paid for imported food. Since only 20 percent of this money stayed in the state, our food system drained $11.2 billion from the local economy. New York's food exports were valued at approximately $2.1 billion, making quite an imbalance of payments.

Importing such volumes of food depresses our economy in terms of both dollars and jobs. Increasing local food production would not only create jobs, it would enhance the economy considerably. Estimates are that for each dollar increase in income to farmers in the livestock sector, with no further processing of products, there is an additional economic activity value of $2.50. For vegetable farmers, the factor would be $1.60.[30]

What can we do?

Even though the facts are depressing, the situation is not hopeless. There are many things we can do to reverse the seemingly disastrous trend we are observing. New York State could greatly increase its food production.

Looking at the total picture, we have 6 million acres of cropland, 2.3 million acres of pastureland, and 1.7 million acres of land that could be converted to agricultural use.[7] Making adjustments for pastureland which can be converted to cropland, we have 9.25 million acres available or potentially available for growing food.

For New York State to produce all the food it consumes, except beef, pork, and wine, would require 6.8 million acres of land.[6] Just raising all the beef we consume would require over 13 million acres,[31] almost 50 percent more than the existing and potential land available.

From these facts, it is obvious that New York State, on the present diet, cannot be totally self-sufficient in food. In addition to lacking the land to produce our meat, we have neither the soil nor the climate to grow the bananas, citrus fruit, rice, peanuts, coffee, tea and cocoa which we consume. But full self-sufficiency is not necessarily a desirable goal. What we can do is move toward increased self-reliance in food, and in the process reduce food costs, strengthen our economy, and decrease the vulnerability of our supply.

A good place to begin is with vegetables. We currently import about 80 percent of all the vegetables we consume, fresh and processed. To grow all our vegetables would require only 326,451 acres of land, roughly double the 156,626 acres that were harvested for sale in 1978.[9]

According to a 1977 National Agricultural Lands Study, New York has 1.7 million acres which have a high or medium potential for conversion to cropland. Considering just the 400,000 acres with a high potencial for conversion (meaning that similar land has been converted to cropland during the last three years), New York State has enough land that is presently unused to make it self-sufficient in vegetable production.[7,32]

Most of the vegetables we eat could be grown in New York State, but obviously not on a year-round basis. Being vegetable self-sufficient would require minor changes in diet, such as foregoing fresh tomatoes, celery, broccoli and lettuce in winter and substituting cabbage, carrots, potatoes, onions, beets, winter squash, and turnips. (See Chart 2.) These cold-storage vegetables alone could sustain us through the winter, without any additional canned or frozen vegetables. Greenhouses, indoor gardening, and sprouting, as well as canning, freezing, and drying of home garden products could supply substantial quantities of food for winter use. Some crops such as Chinese

Chart #2[33]

VEGETABLES FOR STORAGE

Beets. Pick mature vegetables before first killing frost. Pack in layers of damp sawdust or sand. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 4 to 6 months.

Brussels sprouts. Harvest after a few mild frosts. Store in perforated plastic bags. Requirements: 32 to 40° F., 90 to 95 percent humidity. Life: 3 to 5 weeks.

Cabbage. Pick firm, solid heads, and trim off loose outer leaves. Place heads on shelves, string them up by the roots, or wrap in newspaper and store in boxes or bins. (Beware: cabbage emits a strong odor during storage.) Requirements: 32 to 40°F., 80 to 90 percent humidity. Life: 2 to 4 months.

Cabbage, Chinese. Store only mature, solid heads, picked before a severe frost. Store as with regular cabbage, or pack roots in damp soil or sand. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 2 to 4 months.

Carrots. Dig before any hard freezes. Store in cartons of sawdust, sand, or leaves. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 6 to 8 months.

Celery. Store in trenches in the garden, or place roots in boxes of sand or soil. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 1 to 2 months.

Endive, escarole. Pick after moderate fall frosts. Store with roots in soil or sand. Requirements: 32 to 40°F., 80 to 90 percent humidity. Life: 2 to 3 months.

Garlic. After curing, store in paper bags, or braid into strings and hang from rafters. Requirements: 35 to 40°F., 60 to 70 percent humidity. Life: 6 to 8 months.

Horseradish. Dig anytime in fall. Store in damp sand or sawdust. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 4 to 6 months.

Jerusalem artichokes. Mulch in garden or store in plastic bags or damp sand. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 1 to 2 months.

Kohlrabi. Remove leaves and roots. Store in damp sand or sawdust. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 2 to 3 months.

Onions. After curing, remove tops and store in bins or string bags, or braid and hang from rafters. Requirements: 35 to 40°F., 60 to 70 percent humidity. Life: 4 to 6 months.

Parsnips. Mulch in ground or store in damp sawdust, sand, or leaves. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 4 to 6 months.

Potatoes, sweet. After curing, wrap individually in newspaper and pack in baskets, or pack loosely (make sure potatoes aren't touching) in cartons of sawdust. Requirements: 50 to 60°F., 60 to 70 percent humidity. Life: 3 to 5 months.

Potatoes, white. Late potatoes store best. After curing, pack in baskets or boxes. Don't store near apples, which give off a gas that promotes sprouting. Requirements: 32 to 40°F., 80 to 90 percent humidity. Life: 4 to 6 months.

Pumpkins. After curing, place on shelves or in boxes. Requirements: 50 to 60°F., 60 to 70 percent humidity. Life: 4 to 6 months.

Rutabagas. Dig after a few mild frosts. Store in damp sand, sawdust, or moss. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 2 to 4 months.

Salsify. Mulch in garden, or store like parsnips. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 1 to 2 months.

Squash, winter. After curing, pack on shelves or in boxes. Requirements: 50 to 60°F., 60 to 70 percent humidity. Life: 4 to 6 months.

Tomatoes, green. Pick mature green fruits before frost. They will gradually ripen at 55 to 70°F. Requirements: 50 to 60°F., 60 to 70 percent humidity. Life: 4 to 6 weeks.

Turnips. Harvest before a heavy freeze. Store like carrots. Requirements: 32 to 40°F., 90 to 95 percent humidity. Life: 2 to 4 months.

brassicas, kale, parsnips, and Jerusalem artichokes can be harvested throughout much of the winter.

Currently, New York is self-sufficient in foods such as cabbage, sweet corn, beets, veal, fluid milk, cottage cheese, and onions. But we don't always consume what we produce. Take an interesting example: cauliflower. New York State produces more of this vegetable than it annually consumes. In 1979, we produced over 34 million pounds of cauliflower and consumed 32.2 million pounds. Yet we imported over 8 million pounds, mostly from California.

Cauliflower is imported from California because it is available there for 11 months of the year (March excluded), whereas upstate and Long Island cauliflower is available only five months of the year, primarily in the fall.[17] Since cauliflower is not a storage crop, consumer demand for fresh cauliflower in winter must be met by importation from the West and South. Conversely, when our crop is harvested we export some and process some, presumably because it cannot all be consumed locally during the harvest season. Most of the cauliflower shipped out of New York is from Long Island, and is exported to such cities as Baltimore, Boston, Philadelphia, Pittsburgh, and Providence.[16]

An increase in New York State production of cauliflower for freezing would be one way to decrease our importation. New Yorkers already consume nearly 30 percent of their cauliflower in frozen form. Or consumers could eat this vegetable only when local cauliflower was available, as was done until relatively recent times.

Another option for increasing self-reliance would be to decrease meat consumption. If we cut our beef consumption by 80 percent and our pork consumption by 50 percent, and made up the difference with slightly increased consumption of fish, poultry, dairy products, grains, and beans, we would have

no problem meeting our protein requirements. With such a diet, it would take a total of 10.2 million acres to produce all our food -- something close to the 9.25 million acres of farmland and potential farmland we have. This will certainly not happen, and we are not suggesting it should, but it gives an idea of the possibilities for change.

There is already a trend in that direction. A 1979 USDA survey found that 15 to 20 percent of the households interviewed had reduced their use of bacon or sausage, hot dogs or luncheon meats, eggs, beef, and fresh pork and increased their use of poultry and fish during the past three years. Twenty-five percent had increased their use of fruits and vegetables. Concern about fat, cholesterol, salt and sugar intake were reasons cited for these diet changes.[34]

Perhaps the most important thing needed to stimulate regional agriculture is the assurance of markets for farm products. Currently, New York has more than 1000 permanent roadside farm stands, over 600 "pick-your-own" farms, 90 farmers' markets and over 50 direct-sale vineyards and wineries.[35] Over 10,000 NYS farmers (about 23 percent of the total) sold some product directly to consumers in 1979, vegetables being the most widely marketed.[36] But more direct market outlets are needed.

The benefits of direct marketing include increased income for the farmer, fresher, tastier, and cheaper food for the consumer, and a stronger link between producer and consumer. Farmers marketing their products in New York City in 1979, reported getting from 25 to 100 percent above the average wholesale price while consumers averaged savings from 7 to 35 percent. Direct marketing also allows producers to respond directly to consumer demand, as attested to by farmers participating in New York City's Greenmarket, a nonprofit direct marketing program which runs 16 outdoor markets. Prior to

joining the Greenmarket, farmers were growing from 3 to 15 types of vegetables. By 1979, from 12 to 50 types were being grown. Included in this diversification were collards, kohlrabi, chinese cabbage, snow peas, dandelion greens, parsnips, and shallots.[37]

Food manufacturing plants should also be an important market for New York State products. The more raw agricultural products produced in the state that are used in local manufacturing, the greater the economic impact. A cheesemaker who uses only New York State milk will generate more economic activity in the state than a bakery which relies on out-of-state flour.[30]

Growing more of our own food in gardens is another way to expand regional self-reliance. Forty-three percent of U.S. households had gardens in 1980, producing an average of 588 pounds of food. Based on this data, and excluding the New York City population, the state has 1.3 million gardens[2,38] which produce 764.4 million pounds of food, over 25 percent of the fresh vegetables we now eat. If all New York State households outside New York City grew 588 pounds of vegetables, they could produce about 65 percent of our fresh vegetables.

This is unlikely to happen, of course, but the potential for expanded garden production is great. Since the proportion of gardening households increases as food prices rise, the upsurge in home gardening will undoubtedly continue. Urban gardening, whether in community lots, patio containers, windowboxes, rooftops or backyards, can also produce an abundance of food. In New York City, under the Cornell University Cooperative Extension Urban Gardening Program, there are about 3500 city gardens, one-third of which are 100 square feet or less in size. Last spring and summer they produced 485,000 pounds of food with a total retail value of over $520,000.[39]

In addition to producing more of what we consume, we could strengthen our food system by increasing local fertilizer production. In 1979, New York State used 659,250 tons of fertilizer,[14] most of it brought in from outside the state. If we made use of all the nitrogen, phosphorus and potassium nutrients available in livestock, poultry and human wastes, we could produce 61 percent of the nitrogen consumed, 27 percent of the phosphorus and 82 percent of the potassium,[40] and make substantial cutbacks in our fertilizer imports.

Recommendations for Change

Given the vulnerability of our existing food supply, it is clearly desirable for New York to develop a more sustainable agricultural base, and to increase and diversify local food production. There are many different ways to achieve these goals. In this report, it is not feasible to describe all our possible options, so we will focus on three: 1) an overall state food plan that addresses eight areas of concern, 2) an emergency state plan for feeding New Yorkers, 3) actions which New York State consumers can take to better control their own food supply.

1. State Plan for New York's Food System

A. Preservation of Farmland

Remaining farmland must be protected from non-agricultural use. The USDA Soil Conservation Service (SCS) has mapped out New York's important farmlands, showing locations of prime farmland and indicating where urban and suburban sprawl might encroach on productive farmlands in the future. The SCS is preparing county maps of a similar nature. These maps should be used by community leaders and state planners to protect certain areas from development and speculation, perhaps through tax incentives, inheritance tax laws, and community action.

One way New York is acting to preserve farmland is through its agricultural districts law, the oldest in the nation, which was passed in 1971. Farmland which is part of an agricultural district is protected from urban expansion and may receive a use value tax assessment, which allows the farm to be taxed at its farm production value rather than its potential market value. This measure especially benefits farmers located in suburban counties. As of July, 1981, over 7 million acres of farmland had been set aside in 434 agricultural districts.[41]

In Suffolk County, a county plan to purchase development rights may save about 43 percent of some 68,000 acres of farmland from development. Under the plan, a farmer who sells his development rights is paid the difference between the value of his acreage for development and its value for agriculture, thus keeping the land available for crops. Residents of Southampton, in Suffolk County, recently voted to raise taxes for farmland preservation.[42] Other counties threatened by urban and suburban encroachment might follow this lead. A proposed statewide Transfer of Development Rights (TDR) program has been viewed as too complicated to administer and the state legislature has not acted on it in recent years.

Other farmland preservation options include tax breaks for farmers who voluntarily restrict development of their prime agricultural lands, state-imposed agricultural zoning, easing of inheritance taxes, establishment of a development permit system, institution of capital gains tax on land sales and speculation, establishment of a heavy tax on profits made on the development of previously agricultural land, and creation of "agricultural open space preserves," which require each municipality to designate an agricultural preserve within its boundaries composed of at least 70 percent of its prime

farmland. Another strategy, in operation in France, grants the state "first refusal" rights to agricultural land being sold.

Finally, legislation is needed to prevent "leapfrog" or random development, which results from poor planning. As urbanization creeps out towards farms, and tax rates rise, farmers often bear a disproportionate share of the new tax burden, and thus end up subsidizing the loss of farmland!

Some steps are being taken to help farmers. The New York State legislature has passed two important bills, one permits apple grower-processor discussion settlements on prices and terms, and the other is "right-to-farm" legislation which protects agricultural practices that might violate the state nuisance law.[43]

B. Soil Conservation

New York State has had a conservation law since 1975, requiring a conservation plan for all agricultural lands in excess of 25 acres. About one-third of our farms now have a plan, with the remaining plans to be completed by 1987.[44] Some additional possibilities for soil protection include incentive packages at state and federal levels to encourage good conservation and land management principles, a tax on each ton of soil lost from agricultural land, the prohibition of all agricultural production activities which result in more than five tons of soil loss per acre per year, the linking of state purchase of farm commodities to soil conservation programs, and increased public awareness of the need to support sound soil conservation practices. Specific tax incentives could be implemented for conservation techniques such as contour tillage, strip cropping, crop rotation, cover crops, and minimum tillage.

C. Production

Greater emphasis needs to be placed on diversity in farm crops and livestock production if we are to stimulate regional agriculture. Demonstration farms, which experiment with new varieties, with varieties suited to particular climates and soils, and with improved or alternative farming techniques should be developed with support from the USDA, the State Department of Agriculture and Markets, and Cornell University. Policies could be adopted which encourage people to enter farming and provide on-farm specialized training.

The Massachusetts-based New England Small Farmer Project offers assistance to small farmers in various ways, from helping with credit applications to organizing. In Wayland, New York, one of the activities of Project REACH involves helping small-scale producers, primarily in Steuben County. More programs of this nature need to be established throughout the state. Technical assistance regarding diversification should be made available to farmers to help assure success with any changes being made. Increased production by farmers who must depend on off-farm income could help revive regional agriculture, as well as increase the number of full-time farmers. Research is needed to determine what commodities can be produced which will compete favorably with imported products. Home gardens, greenhouses, and use of urban land for food production should also be encouraged.

D. Marketing

New York State already has a strong direct marketing program, which promotes the purchase of locally-grown products by consumers, and more recently, by institutions, agencies, wholesalers and retail stores. A plan to encourage supermarkets to purchase and sell regionally-produced food must be a priority if local foods are to compete with imports. Education is a key here:

supermarket buyers and consumers alike need to learn that purchasing local products helps the economy and decreases the vulnerability of our food supply.

Farmers' markets, roadside stands and "pick-your-own" outlets are becoming more and more popular with consumers, who are recognizing the benefits of fresh, local farm food. Increasing the number of farm stands on the New York State Thruway and selling farm products at large factories and plants would also increase markets. However, direct marketing to consumers must be combined with marketing to retail stores; institutions such as schools, universities, prisons, senior-citizen centers, day-care centers, and hospitals; and wholesalers.

Consumer cooperatives, restaurants and food processors must also get the message to buy more local products. Establishing food processing and storage facilities to supply and distribute products on a year-round basis would help create outlets for items other than fresh produce at harvest time. These centers could grade, pack and distribute the output of small local producers and provide large buyers with the volumes and specifications they demand.[45] Adequate quality control must be guaranteed if local foods are to compete with imports.

Some small farmers in northern New York State have organized themselves into a producers' cooperative to distribute a wide variety of locally-grown foods. The Natural Farmers Cooperative of the St. Lawrence Valley offers technical assistance to inexperienced growers, purchases supplies and services in bulk and markets its own products, thereby eliminating profits to private middlemen and offering lower prices and higher quality food to buyers. These efforts should be encouraged and expanded.

The New York State Assembly and Senate recently passed an amendment to the Agriculture and Markets Law which would develop institutional direct marketing

programs, encourage direct marketing to public and private state agencies, and assist wholesale buyers and retail food stores seeking to purchase farm and food products directly from farmers. This legislation should help local producers.

Other options include electronic markets which centralize price negotiation, thus allowing for direct marketing but including the advantages of pricing accuracy normally associated with larger markets, and a forward deliverable contract market which could achieve the benefits of open market trading along with the benefits of contracting. Exclusive agency bargaining, vertical integration through ownership, joint ventures between agricultural cooperatives and agribusiness marketing firms, marketing orders and marketing boards are also potentially viable strategies.[46] Several forms of tax incentives might work in New York, including exemption of the first $10,000 worth of food produced for local consumption and tax incentives to attract food processors to the state who wish to reduce transportation costs by locating near a major distribution center. Other possibilities include assistance to small growers through a state-wide marketing clearinghouse, and the expansion of on-farm processing, cooling, and fresh packing of local food crops.

E. Energy

Increasing regional food production with small farms would reduce the amount of energy needed to transport food, irrigate Western lands, and might decrease the energy consumed by large farm machinery. Further energy conservation could also be practiced in local areas. One New York dairy farm is the site of a new research project being conducted by Cornell University, the U.S. Department of Energy, and the New York State Energy Research and Development Authority, in which as much as 65 to 75 percent of the energy required to run the farm will be generated by producing methane gas from manure

and a liquid fuel from corn or sunflower seed. The methane will run a generator which produces electricity. Waste heat from the generator will be recycled to heat water for the "digester," which treats the manure. The manure will still be available for fertilizer, since none of its nutrient value is lost in the process.[47] The success of this project may have a significant impact on energy conservation in the agricultural sector of our state.

Another energy-saving technique for New York dairy farms would be to feed less grain and more forage (hay, silage, pasture and crop residues) to dairy cows, since grain requires 65 to 70 percent more energy per kilogram of protein produced. In order to do this, some land must be returned to productivity and forage quality must be improved to guarantee adequate milk yields.[48]

Other options in energy conservation include developing incentives and methods for the conversion of local organic wastes to fertilizer, establishing an Agricultural Waste Council in the New York State Department of Agriculture and Markets to develop desirable legislation and other measures to facilitate the recycling of these organic wastes, providing investment credits for construction of structures such as energy-saving barns and greenhouses, developing incentives for water conservation measures, and initiating educational programs for reduced pesticide use. Encouraging use of water or wind energy for generating power is another possibility.

Too, consumers should be made aware of the energy used in food production and preparation. If the nation's population were to substitute wheat flour as a source for half of the 36 trillion calories it consumes as refined sugar, the annual energy saving would be the equivalent of almost 13 million barrels of oil.[49] There is generally an overconsumption of food in the U.S. today, so cutting down on sugar and calories in general would help, as would decreasing the waste in home food preparation and consumption. In terms of food

preparation, baking is more energy-intensive than stove-top cooking; pressure cookers are excellent energy savers.

F. Rural Life

Preserving and strengthening the family farm should be a top priority. A recent task force recommended that the state Extension Service and the experiment stations channel more effort into helping small- and moderate-sized farms, in part by doing research into farm size and maximum efficiency.[50] Beginning farmers could be offered guaranteed state loans with deferred or reduced payments until five years after start-up, a program currently being followed in Minnesota. Young people interested in learning about farming could take part in organized on-farm summer work activities. Another possibility would be to develop "entry packages" for new farmers that would include help in obtaining the needed quantities of land, capital, and advice, together with managerial and organizational assistance.

An interesting trend which needs attention is the "rural revolution." New York's rural population is increasing at a significant rate; today our state has the third largest rural population in the nation. However, most of these residents are not farmers, and statistics show that non-agricultural people living in rural areas outnumber farmers by a ratio of 20 to 1. This situation can create economic pressures affecting the ability of farmers to operate a farm profitably.[10] Rural needs and affairs, in general, need to be given a higher priority in the federal and state governments, the USDA, and state universities.

G. Research

One option in this area might be appropriating additional funds (or channeling existing funds) to New York's land grant university for research on

sustainable farming methods and local food production. Joint research projects with the Department of Agriculture and Markets are another possibility.

H. Government

For several years now, New York has been developing a state food policy which will be ready to go to the state legislature in the near future. Among the goals of the policy are to 1) maintain the resource base of New York State, including farms and farmland, 2) determine which imported foods can be produced locally, 3) expand export markets for New York State-produced foods, 4) assure development of fisheries and aquaculture, 5) develop a clearinghouse for food-related research going on in the state, 6) encourage the identification and promotion of New York food products by producers, wholesalers and retailers, 7) promote nutrition education, and 8) encourage local responsibility for the food supply through community planning, self-reliance programs, and regional interdependence. A state food policy could help increase our self-reliance and economic viability while decreasing the vulnerability of our food supply.

2. Emergency State Food Plan

An emergency state food plan for New York State needs to incorporate measures which will deal with contingencies such as: 1) a complete oil cut-off to the U.S.; 2) a multi-year drought or insect infestation in our food producing areas or areas which supply us; 3) a near shutdown for one to four weeks of the U.S. trucking and rail system; 4) a widespread labor dispute which could cut off the flow of food into New York; and 5) an extraordinary leap in food prices so that only the wealthiest people could afford to buy food.

Some options New York has for dealing with these contingencies include the establishment of state or regional grain storage facilities, the encouragement of home, community and city storage of basic foodstuffs, the formation within

our current Civil Defense organization of state-wide communication and coordination centers for dealing with a food emergency, and the general encouragement, expressed in all these measures, of producing more of our food within New York State.

3. New York State Consumer Activities

There are a wide variety of options available that will help the New York consumer deal with the increasing price of food and the vulnerability of our supply. Tax and other incentives could be used to encourage local production of food by expanding home gardens, producing food in the winter with small-scale greenhouses or "growth frames," or in larger greenhouses or "sunspaces" that can be added on to existing houses, producing protein with small-scale fish, rabbit or quail culture, and processing and storing more food at home. Consumers could also buy foodstuffs in large quantities when they are in season and then preserve them, form buying clubs to purchase foods directly from producers, develop more community and urban gardens, and establish community canneries and warehouse facilities.

Implementing the most appropriate of these measures could greatly strengthen New York's food security and economic viability, while providing New Yorkers with more nutritious and better tasting food. Such changes would decrease our vulnerability to situations outside our control and help create a more sustainable food system for New York State. Without changes, the system will crash. However, we can choose to make a "soft landing" and prevent any serious food problems. There are solutions and we still have time to act. If New York is to regain control of its food system, the state must be willing to provide the resources necessary to develop and implement a realistic plan of action. We cannot delay any longer. The time to begin is now.

Notes

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New York State Food Imports

Although New York State is a leading food producer in the Northeast, and agriculture is the state's largest industry, New York's food system is in serious trouble. More than 75 percent of the food must be imported, much of it from the other end of the country. New Yorkers pay over $700 million annually just to bring food into the state.

However, New York State could greatly increase its food production. For example, most of the vegetables New Yorkers eat could be grown in the state, though not on a year-round basis. In addition to producing more of what is consumed, other steps need to be taken, such as preserving farmland, conserving soil and energy, and expanding markets. Implementing appropriate measures could greatly strengthen New York's food security and economic viability.

Footnotes

a Retail weights for NY production are taken from 1979 New York Agricultural Statistics or Agricultural Statistics 1980 (USDA) and converted where necessary using USDA conversion figures.

b Sources for prices: U.S. Department of Labor, Bureau of Labor Statistics, A & P, Watertown, N.Y. and Daitch Shopwell, New York City.

c Direct Marketing By New York Farmers, preliminary report, N.Y. Department of Agriculture and Markets, Crop Reporting Service, March 1981.

d Consumption in N.Y. is based on U.S. per capita consumption figures as they appear in Agricultural Statistics 1980 and Food Consumption, Prices and Expenditures, USDA Statistical Bulletin No. 656.

e Based on acreage requirements of 90% marginal land, i.e. hillsides and land unsuited for crops. Dr. Lowell Wilson, Penn State University.

f 147,250,000 dozen

g Data supplied by Dr. Donald Keating from N.Y. Crop Reporting Service State Survey, unpublished.

h Fishery Statistics of U.S. 1976. Finfish data excludes freshwater recreational catch, estimates not available.

i Division of Dairy Industry Services, N.Y. Dept. of Agriculture and Markets, Mr. David Bucciferro.

j New York State Dairy Statistics, 1979 Annual Summary, N.Y. State Dept. of Agriculture and Markets, Division of Dairy Industry Services.

k 118,833,000 gal.

l 1980 per capita consumption figures, Milk Industry Foundation.

m Includes evaporated skim milk.

n Includes ice cream, ice milk, sherbets, mixes.

o For import and export calculations, total consumption figures (fresh and fresh equivalent weight) are used.

p Retail value of amount imported reflects fresh and processed retail values.

q Estimate, tomatoes for processing, Dr. Brian How, Cornell University.

r Includes cabbage, broccoli, cauliflower and brussels sprouts.

s 1978 Census of Agriculture, part 32 New York.

t Yield per acre obtained from Kling Farms, Fonda, N.Y.

u Based on 1979 yield/acre for N.J.; No N.Y. data available.

v Yield per acre obtained from Torrey Farms, Elba, N.Y.

w Fresh beets, limas, green peas are included in minor vegetables.

x Based on 1979 U.S. average yield/acre; No N.Y. data available.

y Per capita consumption figures supplied by American Mushroom Institute.

z Estimate supplied by Dr. Wayne Knapp, Cornell University.

aa Soya, Grits and flour.

bb Estimate based on telephone survey of tofu shops in New York State.

cc Based on total U.S. tofu production of 52 million pounds, supplied by Mr. Ira Leviton, Soycrafters Association of North America, Inc.; assumed to be U.S. consumption.

dd USDA Livestock and Meat Statistics, supplement 1979.

ee Lard is a by-product of hog slaughter.

ff Clinton Corn Co., Montezuma, NY; largest corn processor in the state.

gg Includes wheat flour and cereal.

hh Flour.

ii Includes malt and pearled barley.

jj 11,987,500 gallons. Conversion factor of 1 ton grapes yielding 175 gallons wine supplied by Wine Institute, San Francisco.

kk 315,000 gallons.

ll This total acreage figure excludes land needed to grow grapes for wine.

mm Total Nuts, exluding peanuts.

+ Several fresh items include figures for processed, where no further breakdown was available. Consumption data are for fresh.

NA - Not Applicable

NC - Data not collected by USDA, N.Y.Department of Agriculture and Markets or other agencies.

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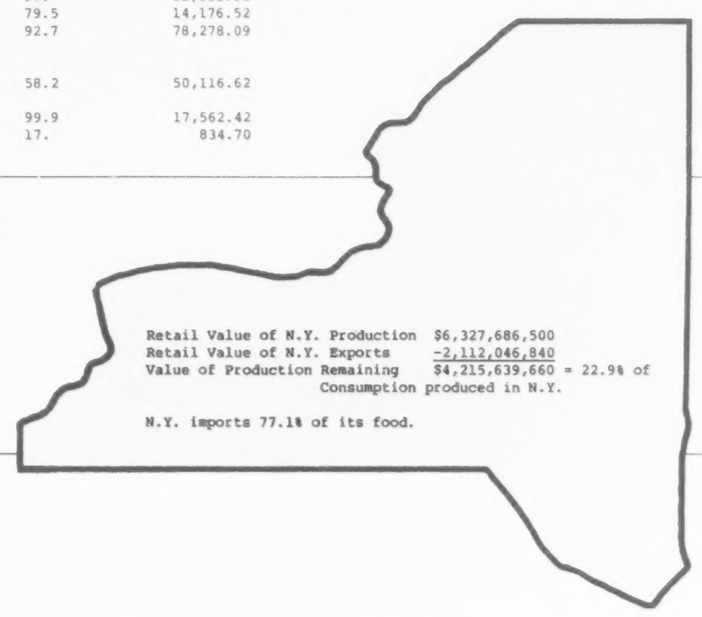
New York State Food Imports

AS DETERMINED BY FOOD PRODUCTION AND CONSUMPTION BY WEIGHT AND RETAIL VALUE

COMMODITY	PRODUCTION (Total Fresh & for Processed)			CONSUMPTION						
	Retail Weight[a] (1,000 lbs)	Retail Value[b] ($1,000) (1980 $)	Direct Market[c] $ Value of Sales (1,000)	Consumption in NY[d] (1,000 lbs.)	Retail Value ($1,000) (1980 $)	% Imported	Retail Value of Amount Imported ($1,000)	Amount Exported (% of Production)	Retail Value of Amount Exported ($1,000)	Amount of Land Required to Produce 100% of NY Consumption (Acres)
Meats										
Beef	120,583.15	284,576.23		1,428,008.	3,327,258.6	91.6	3,027,804.7			13,851,677.[n]
Veal	42,393.6	126,756.86		28,703.7	85,824.06			32.	40,562.19	
Lamb/Mutton	1,832.6	4,489.87		23,321.7	57,138.16	92.1	52,624.24			7,773.9
Pork	50,473.15	68,643.48		1,158,911.	1,576,118.9	95.6	1,506,769.6			1,267,868.
Edible offals	NC			182,985.9						
Poultry										
Chicken	22,712.4	17,034.30		923,899.7	692,924.77	97.5	670,212.29			461,945.
Turkey	3,541.6	3,286.60		181,191.9	168,146.1	98.	164,783.08			148,450.
Eggs	230,691.[f]	128,107.5		642,244.84	349,220.6	64.	223,782.34			386,786.
Duck	20,022.[g]	18,420.24						majority		
Livestock, Poultry & Products			13,336.38							
Fish										
Finfish	5,194.5[h]	12,155.13		177,604.	415,593.36	97.1	403,541.15			
Shellfish	17,633.0[h]	88,165.		53,819.	269,095.	67.3	59,335.04			
Dairy Products[j]			8,025.28							1,976,000.
Cheese	304,480.	739,886.4		315,740.	767,248.2	3.5	26,853.68			
Cottage Cheese	250,538.	263,064.9		82,523.08	86,649.25			67.	176,253.48	
Milk	4,100,000.	1,066,000.		4,258,718.6[i]	1,107,266.6	7.9[i,j]	221,224.9	22.45[j]	623,346.62	
Cream				66,374.3[i]	172,573.					
Sour Cream	71,187.	56,237.73		33,726.82[i]	26,644.19			52.6	37,444.36	
Yogurt	102,068.	112,274.8		47,899.26[i]	52,689.19			53.	59,505.64	
Eggnog	7,930.			7,714.11[i]				2.7		
Condensed Skim Milk	84,797.	55,118.05		60,995.32[m]	39,646.95			28.	15,433.10	
Condensed Whole	44,377.	54,583.71		19,733.78	24,272.55			55.5	30,021.04	
Nonfat Dry Milk	42,152.	57,748.24		60,995.32	83,563.28	30.8	25,737.58			
Dry Whey	38,323.	28,742.25		55,613.38	41,709.75	31.	12,929.79			
Frozen Desserts[n]	475,332.[k]	527,618.5		482,580.62	535,664.46	1.5	8,034.97			
Butter	35,851.	68,475.41		82,523.1	157,619.12	56.5	89,054.80			
Vegetables, Fresh[+]				--o	--p			--o		
Potatoes	1,289,400.	322,350.	582.94	909,547.86	227,386.97	31.9	215,674.99			31,913.
Onions	409,500.	135,135.		197,337.8	65,121.47			47.8	65,540.47	5,979.
Snap Beans, fresh	23,800.		208.04							
processed	212,500.									
Total	236,300.	186,677.		23,321.74	18,424.17			45.[j]	84,564.68	5,004.6
Cabbage	338,100.	64,239.	1,159,569.[r]	145,312.38	27,609.36			62.5	59,785.87	3,864.7
Sweet Corn, fresh	141,100.		5,833.66							
processed	199,000.									
Total	340,100.	85,025.		121,990.64	30,497.66			22.8	19,385.70	18,767.78
Tomatoes, fresh	39,000.		2,307.17							
processed	6,500.[q]									
Total	45,500.	26,390.		193,749.8	112,374.88	94.	425,615.58			14,903.8
Lettuce	70,200.	26,676.		434,143.16	164,974.4	84.	138,578.49			22,263.7
Cauliflower	34,600.	18,338.		21,527.76	11,409.71			6.67	12,231.45	2,242.39
Carrots, fresh	30,500.									
processed	28,380.									
Total	58,880.	21,198.8		105,844.8	38,104.13	61.	34,393.62			3,675.16
Cucumbers	31,100.	27,679.	422.67	69,965.22	62,269.03	83.16	152,846.16			6,083.9
Celery	28,100.	9,835.		125,578.6	43,952.51	77.6	34,107.14			2,683.3
Green Peas, processed	20,840.	10,420.				72.7				
fresh			37.98	--w						--w
Squash	80,384.[s,t]	31,349.76	271.95	NC						
Peppers	7,353.5[s,u]	3,529.68	308.45	57,407.36	27,555.53	87.2				10,437.7
Pumpkins	45,450.[s,v]	17,725.50	363.01	NC						
Asparagus	364.[s,x]	505.96	33.54	5,381.94	7,480.89	97.3	10,795.17			2,242.5
Other Vegetables			12,897.38							
Sweet Potatoes	NC			71,759.2	17,939.80					6,239.9
Eggplant	2,218.5[s,u]	1,752.6		10,753.88	8,503.46	79.4	6,751.75			742.
Minor Vegetables[w]				71,759.2	42,337.9					5,881.9
Mushrooms	8,144.	11,320.		48,437.46[y]	67,328.36	83.	55,882.29			
Artichoke	0.			7,175.92	2,798.6	100.				NA
Broccoli	1,410.4[s,x]	705.2		23,321.74	11,660.37	97.	31,336.82			2,844.1
Spinach	6,805.5[s,u]	3,334.69		7,175.92	3,516.20	79.5	14,176.52			1,025.
Garlic	1,170.8[s,x]	6,119.10		16,145.82	84,442.39	92.7	78,278.09			1,241.
Southern Greens/Misc.	NC			20,989.57	12,383.84					
Dry Edible Beans	48,000.	36,000.		114,814.72	86,111.04	58.2	50,116.62			95,678.
Dry Field Peas				7,175.92	2,798.61					5,224.
Soybeans	1.56[x]	.76		35,879.6[aa]	17,580.	99.9	17,562.42			22,999.
Tofu	3,418.5[bb]	4,068.		4,126.2[cc]	4,910.2	17.	834.70			1,202.
Vegetables, Frozen										
Broccoli	NC			24,577.53	20,645.13					3,596.7
Carrots	NC			19,554.38	13,883.61					1,127.09
Spinach	NC			13,096.05	7,857.63					1,870.86
Asparagus	NC			1,435.18	3,975.45					717.59
Snap Beans	NC			22,065.95	17,432.[illegible]					6,297.79
Lima Beans	NC			9,149.3	8,874.82					6,633.24
Brussels Sprouts	NC			5,202.5	4,890.35					446.
Cauliflower	NC			8,969.9	8,431.71					1,121.2
Corn	NC			18,477.9	11,086.74					3,411.3
Onions	NC			13,454.85	13,454.85					493.34
Peas	NC			31,215.25	20,602.06					10,098.5
Potatoes	NC			324,710.38	207,814.64					25,293.23
Vegetables, Canned										
Carrots	NC			8,969.9	4,395.25					414.23
Spinach	NC			14,351.84	6,458.33					1,847.28
Asparagus	NC			5,381.94	10,225.69					2,735.82
Snap Beans	NC			107,638.8	52,743.01					16,446.
Lima Beans	NC			7,175.92	7,462.96					2,803.1
Corn	NC			98,668.9	45,387.69					18,215.80
Peas	NC			57,407.36	22,388.87					12,625.02
Whole Tomatoes	NC			104,050.84	56,187.45					12,406.1
Catsup, Paste, Sauce	NC			260,127.1	195,095.32					31,015.15
Tomato Puree	NC			14,351.84	7,749.99					1,711.17
Tomato & Veg. Juices	NC			50,231.44	13,562.49					
Pumpkin/Squash	NC			10,763.88	6,027.77					940.9
Beets	158,200.	83,846.		17,939.8	9,508.09			70.25	58,692.2	731.43
Pickles	NC			154,282.28	121,883.					9,981.46
Sauerkraut	165,360.	31,418.		23,321.74	7,462.96					1,153.06
Potatoes	NC			25,115.72	9,795.13					1,339.5
Sweet Potatoes	NC			19,733.78	11,642.93					2,217.
Potato Chips & Dehy.	NC			102,256.86	231,100.50					
Fruits, Fresh										
Apples	1,035,000.	662,400.	8,825.	297,800.68	190,592.44			71.	470,304.	22,907.7
Peaches	6,700.	2,596.		98,668.9	37,493.84	93.3	34,981.75			20,877.8
Pears	35,400.	24,780.	226.92	44,849.5	31,394.65	21.1	6,592.88			6,529.3
Sweet Cherries	8,100.	7,209.	120.05	10,763.88	9,579.78	24.7	2,366.21			3,443.3
Tart Cherries	27,300.	13,377.								
Strawberries	8,400.	7,728.	2,452.	32,291.64	29,708.31	74.	21,984.14			6,941.45
Grapes	6,000.	7,740.	58.39	55,613.38	71,741.26			83.	353,331.	6,768.
Melons	7,637.[s]	3,207.54	179.85	147,106.36	61,784.67	94.8	58,571.87			9,552.36
Plums, Prunes	5,406.08[s]	4,216.74	110.85	30,497.66	23,788.17	82.3	19,577.66			7,030.35
Watermelon	707.6[s]	134.44		202,719.74	38,516.74	99.6	38,361.94			17,475.
Bananas	0.			383,911.72	134,369.1	100.	134,369.1			NA
Citrus	0.			430,555.2	215,277.6	100.	215,277.6			NA
Other Fruits & Nuts			540.16							
Nuts										
Walnuts	2.7[s]	9.61		30,497.66[mm]	158,587.83	99.95	158,429.21			308,368.6[mm]
Other	13.3[s]	90.97								
Peanuts	0.			127,372.58	371,927.93	100.	371,927.93			NA
Fats & Oils										--ee
Lard	4,193.15[dd]	2,893.27		46,643.48	32,184.0	91.	29,287.44			
Margarine	NC			206,307.7	179,487.69					
Shortening	NC			339,062.22	254,296.65					
Oils	15,600.[ff] (corn)	14,664.		414,409.38	389,544.48	96.	373,962.70			
Grains										
Wheat (flour)	270,956.	73,158.12		2,204,801.4[gg]	595,296.37	88.	368,642.78			2,338,071.
Rye	Insignificant			14,351.84[hh]	3,874.99	100.	3,874.99			8,008.8
Oats	Insignificant			57,407.36	34,444.42	100.	34,444.42			28,935.2
Barley	Insignificant			21,527.76[ii]	10,548.6	100.	10,548.60			9,343.6
Buckwheat (groats)	3,189.	4,113.81								
Rice	0.			165,046.16	117,182.77	100.	117,182.77			NA
Corn Meal, Flour, Cereal, Starch	Insignificant			213,483.62	172,921.73					50,231.
Corn Sweeteners	438,000.	262,800.		685,300.36	411,180.21	36.	148,024.87			179,163.
Processed Fruit Products			782.08							
Dried Fruits	NC			55,433.98	88,140.03					
Frozen Fruit	NC			46,105.29	50,254.76					
Canned Fruit	NC			351,620.08	147,680.44					
Frozen Citrus Juice	NC			220,838.93	247,339.60					
Canned/Chilled Fruit Juice	181,000.	112,220.		410,103.82	196,849.83					
Wine (Crushed Grapes)	137,000.[ii]	157,276.		330,092.32	528,147.71	70.	366,203.39			55,375.
Other Products			10,513.34							
Sugar	0.			1,702,487.	629,920.19	100.	629,920.19			354,684.7
Honey	7,006.	8,337.14		23,321.74	27,752.87	69.9	19,399.26			
Maple Syrup	3,465.[kk]	11,711.70		1,793.98	6,063.65			48.2	5,645.04	
Honey & Syrups			2,913.57							
Coffee, Tea, Cocoa	0.			213,483.62	674,608.23	100.	674,608.23			NA
TOTALS	11,847,087.45	6,327,686.5	1,220,406.32	24,416,411.58	18,411,530.44		11,598,178.37		2,112,046.84	20,788,659.[11]


Retail Value of N.Y. Production $6,327,686,500
Retail Value of N.Y. Exports -2,112,046,840
Value of Production Remaining $4,215,639,660 = 22.9% of Consumption produced in N.Y.
N.Y. imports 77.1% of its food.